

Hughes (6A)

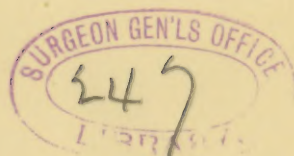
THE
HYGIENE OF THE NERVOUS
SYSTEM AND MIND.

*The Relation of the Nervous System to Cholera
and its Prophylaxis and Neurotherapy. The
Cure and Prevention of Dyspepsia as a
Nervous Disease. The Neuropathic
Diathesis; its Quarantine and
Treatment.*

By C. H. HUGHES, M. D., St. Louis.

Lecturer on Psychiatry and Neurology, St. Louis Medical
College. Honorary Member British Medico-Psychological
Association. Late Superintendent and Physician
of the Missouri State Lunatic Asylum, etc.

Reprint from
THE ALIENIST AND NEUROLOGIST,
St. Louis, January, 1885.



THE
HYGIENE OF THE NERVOUS
SYSTEM AND MIND.

— ✓ —
BY C. H. HUGHES, M. D., ST. LOUIS.

The Hygiene of the Nervous System and Mind.*

THE RELATION OF THE NERVOUS SYSTEM TO CHOLERA AND ITS PROPHYLAXIS AND NEUROTHERAPY. THE CURE AND PREVENTION OF DYSPEPSIA AS A NERVOUS DISEASE. THE NEUROPATHIC DIATHESIS; ITS QUARANTINE AND TREATMENT.

By C. H. HUGHES, M. D., St. Louis.

Lecturer on Psychiatry and Neurology, St. Louis Medical College; Honorary Member British Medico-Psychological Association; late Superintendent and Physician of the Missouri State Lunatic Asylum, etc.

A CENTURY ago Cullen made the observation that from all that he could discern of the movements of the human body in disease they were all so intimately associated with and dependent upon the nervous system that they might in a manner be called nervous ("Quantam ego quidem video motus morborum fere omnes a motibus in systemate nervorum ita pendent, ut morbi fere omnes quodammodo Nervosi dici queant."—Cullen's Nos. b. II., p. 181, Edin. Ed., 1780.)

This proposition has been sustained from that day to this by every step taken in the forward march of medicine, for, notwithstanding the significant and valuable discoveries of spores, fungi, microbes, bacilli and other microscopic revelations and their relation to morbid states of the blood and organism, it is not until the nervous system is morbidly touched and yields in disordered action (psychic, trophic, motor, vaso-motor or other parts of the sympathetic, especially in its ganglia), that the characteristic phenomena of distinctive disease appear. The intangible virus of zymotic fever, which "touches the life of all the blood corruptibly" is first revealed in the *malaise*, cephalalgia, jactitation, insomnia or somnolencia and delirium of the

*Read before St. Louis Medical Society, Sept., 1884.

higher psychical centers of the cerebrum. And so other fevers after the symptomatic revelations of a disturbed and struggling nervous system notify the physician that his aid is needed, the microscope, if he have time then to use it, may reveal the proximate cause of the morbid commotion to be, or have been micrococci or filariæ, but until the assaulted nervous system succumbs, we know nothing of the mischief brewing or the danger threatened, and the specific microbe sustains the same relation to the resultant phenomena that the draught of air or sudden exposure to change of temperature does to the vaso-motor paralysis and resultant mucous and vascular congestion phenomena of a common cold or its graver results in localized inflammation. Bacilli are not disease, but only potent causes, just as stone in the bladder and sanguineous, fibrinous or serous exudates are consequences of morbid systematic action.

Malaria, of which we know so much and yet so little, reveals itself in chills and fever; both nervous phenomena, and in congestions and delirium and coma, which but for the yielding of the vaso-motor nervous system and disturbance of the psycho-motor area of the brain could not occur, and when the final ending of all physical function is foretold in the graver blood empoisonments of yellow and other fevers, the last expiring movement is in the nervous system, in those "idle comments of the brain which foretell the ending of mortality." This is true of the rigor mortis of sudden death and the last comatose symptom of cholera collapse. We have seen, in the progress of medical observation and research, many obscure diseases, as pathology has grown clearer, assigned to their proper place in the nervous system, from exophthalmic goitre to eczema and from cholera to dyspepsia, notwithstanding that in connection with the contagion and spread of cholera Asiatica, a contagium microbe, thanks to the labors and noble heroism of Koch, is proven in the comma bacillus as the essential causative or resultant excitant and propagative factor. Yet cholera is essentially a disease of

the nervous system in its symptomatic display, especially beyond the bowels.

The phenomena of this dread disease which demand our attention are essentially nervous; the paralyzed vasomotor control which admits of the fatal aqueous exudations, which permit the exsanguined and shrunken features, and the fatal exhaustion, the sudden paralysis of appropriating power of the centres presiding over nutrition, the complete exhaustion of the trophic nervous system which makes the administration of medicine in certain fatally predestined cases appear like a solemn mockery, the pinched, contracted visage, and the painful and finally painless cramps, and exhausted power of inhibition, which sooner or later appears, all tell us how essentially nervous are the phenomena of this pestilence, when once its hold is secure upon its victim, and suggest the importance of a well sustained, vigorous, tranquil and resisting nervous system in warding off its destructive attacks.

Though this pestilence no longer walketh in darkness, and though it wasteth less at noonday than in the distant past, its sad work still goes on under the glare of the brightest light of science, but there are hygienic methods which to-day diminish susceptibility to contagion, by imparting public confidence, reducing mental demoralization and panic, and maintaining the general health of communities up to a higher standard. Though by sight of science we have probably found the cholera bacillus (the bacillus of cholera Asiatica and of cholera nostras perhaps) we can not yet entirely by power of science keep this potent living infinitesimal from evil, yet we can resist and circumvent its power, not alone by clean streets and dwelling places, sunlight into the dark places and disinfection and pure air where dirt and filth abound, but by clean and strong bodies and by well sustained, well rested, invigorated and tranquilized nervous systems, built up to the power of resistance to the very maximum of physiological strength, not stimulated spasmodically by sudden fright after the pestilence has come, but trained up in

advance by adequate but temperate nourishment; by ample rest of brain for the fullest possible recuperation, each night, of the day's wasted power; by making cities profoundly quiet in time of the pestilence by interdicting the needless noises both day and night, which keep the cells of the brain and nervous system agitated and restless, when they might be restful and in condition of repair for more work; and by a trained abeyance of the passions, the abandonment of exhaustive vices which undermine the nervous system and fit it to succumb to light assaults of disease.

To this end, in anticipation of an invasion of cholera here next year, the prudent will finish up, before the epidemic comes, present business enterprises which promise unusual mental strain, worry or other tax on their powers, and permit a little of that reserve nerve force to accumulate, which, hitherto, like an improvident man with his bank account, they have been in the habit of expending as fast as it has accrued. Cholera is not in strictest sense a filth disease, at least in this country, though filth by contaminating the atmosphere and thus impoverishing the blood and impairing the nervous system, furnishes favorable conditions for its taking hold on the organism. On the contrary, putrefaction bacteria, as Koch asserts, destroy the comma bacilli or arrest their multiplication. Alcoholic stimulation, at least to dissipation so-called, must be abandoned; the physiological tone of the vaso-motor system maintained and the perfect stability of the higher cerebral centres—the psycho-motor and psychical—must be permitted to become re-established up to the point of their highest resisting power. Habitual alcoholization is a paralyzant of the vaso-motor nervous system as well as of the cortex of the brain, beyond all doubt, notwithstanding it acts as a temporary excitant, and momentarily stimulates latent power into increased activity. The frequent habitual use of stimulants like alcohol exalts the heart's activity, exhausts the tonicity of the brain by causing it to expend its latent reserve power

daily; and leaves its vessels dilated and its substance oppressed; the cerebra-spinal fluid crowded out of the perivascular spaces and the brain is prepared then for apoplexia and coma. Tobacco, too, is a vaso-motor paralyzant and motor depressant and weakener of vital power in those in whom tolerance has not been well established, and had better be used with moderation or abstained from.

To the end of proper prophylaxis in regard to the nervous system, the hours of rest and labor should be regulated by municipal authority, that over-taxed human beings, especially among the poor, should not be made ready subjects for attack and almost certain victims to the fatality of cholera. Night work should be discountenanced so far as practicable and prolonged work-hours without adequate rest following should, when practicable, be prohibited.

The schools should be looked after; tasks should be lightened and invigorating relaxation lengthened both for teacher and pupil, and more daylight and pure air let into the school room. Fewer hours of study should be required; overcrowded rooms should not be tolerated and basement lunch, or recitation rooms, abandoned.

Those who hold people to service should see that they do not engage in dissipating and exhausting pleasures during hours which should be devoted to sleep, and should enjoin staying at home and resting instead of wasting their nervous powers by frolicking till midnight, and then retiring to be awakened unrefreshed for the morning's work. Cholera in the kitchen imperils the health of the parlor and the health of rooms upstairs is concerned in the welfare of the occupants of the laundry. Saloons should be closed at an early night season if not during the day, in times of epidemic, and men before they get dead-drunk in them should be taken home and put to bed by the police.

All causes, public or private, of depression of the nervous system should, in times of this epidemic be avoided; long and exhaustive funeral services, especially

in crowded and illy ventilated rooms, tiresome and ostentatious funeral processions, cars and rooms vitiated by tobacco smoke and depressing human exhalations.

Men may deny that nature's God commanded the Sabbath day for rest, but physicians know that imperious nature demands it, if longevity of human life would be reached. The law of Moses commanding a respite from customary labor one day in seven was founded in physiological wisdom, nature and nature's God inspired it. And for this reason physicians should demand that the sounds of busy industry should cease one day in seven, that the ceaseless bustle and din of business, which so tries the nervous system during the week, shall cease each seventh day, for one of recuperative rest to brain and mind; that all needless noises which harshly grate upon the ear and rob tired nature of needed repose should be suppressed, in order that enough of sleep, and rest, "sore labor's bath," "tired nature's second course," may come to the people of the heart of the city to "knit up the week's ravelled sleeve of care." There is too much unnecessary noise even on ordinary business days, and too much noise allowed in the night time, and altogether too much on Sunday for the highest health of the people of our great American cities.

The wealthy suburban resident does not suffer so much from this cause of nerve disturbance as the working man and subordinate business man who lives down town, but the needless wear and tear of brain and nerve from unnecessary and preventable city noises, if prevented, would add very materially to the healthful endurance of the people in time of cholera and at all times, prolonging life and averting insanity and premature failures of the nervous system in other directions. To be well repaired, man, like any other machine, must rest, and rest of brain and nerve is disturbed through the channels and centers of audition and sight, as well as through those of motion, etc.

The prayer of conservative 'physiology is for rest, for the salvation of the resisting power of the nervous system to devastating pestilence, and the power of resisting and

sustaining disease in general, is obtained by adequate rest of the organism, which is a condition of its repair and power.

The cause of much of the premature decrepitude and nerve degeneracy, and breakdown of our day, is in the many inventions man has devised whereby he robs himself of timely rest. The morning newspaper often read through before breakfast; the telephone in his house to call him at any and all times aside from his repose; the electric light to keep his brain unduly stimulated through the retinae; the railroad and the sleeping coach which may keep him constantly on the rail (if he chooses to so travel) for continuous weeks without rest from the noisy and exhaustive cerebro-spinal concussions of this mode of travel; hasty meals and telegrams, and business, and nightmare sleep, all commingled, wither and wreck lives innumerable, which, under wiser management might end differently, and the needless noises of the city, the bells and steam whistles, howling hucksters, noisy street cars, yelling hoodlums, that make night hideous with soul jarring sounds, hasten the premature endings of useful lives. And when, superadded to all this unphysiological strain, we have the assault of a pestilence that poisons, like cholera, how much exemption can such overwrought organisms expect? How much of resisting immunity can such overstrained and exhausted nerve force oppose to the invading foe?

If the epidemic comes, as it almost surely will next summer or fall, there should be a common understanding among physicians to demand as much rest as practicable for the people, and, by comity among themselves, they should lighten each other's labors and no one should work continuously night and day.

It is not long after an epidemic comes before the long watching nurses and the tired, over-taxed doctors become its victims.

The lesson a pestilence teaches is not only cleanliness but temperance, and restful resisting vigor for the nervous system and the conservation of its powers, maintaining

the functions of the body in the presence of a blood destroying and vitality depressing enemy. With the human organization, in a long contest with disease, the blood is the life, but if the nervous system have secured to itself, by ample rest and frugality and economy of expenditure; and by freedom from overstrain and vicious indulgence, have established the habit of claiming and securing to recuperative use its own elements from the blood, it will be long in yielding and longer still in perishing under the assaults of disease.

It is this trained resistance of the nervous system by which it is taught physiologically, pending a successfully resisted attack, to claim its own nutrition, even while the blood is depressed by the presence of a pestilential virus, which, in my opinion, constitutes immunity from recurring attacks; the comma bacillus is destructible too in strong healthy gastric juice as Koch and Klein have shown, and it is through a vigorous, well poised nervous system that we may be assured of the destructive potency of the gastric digestive secretion. The inferior animals too, whose nervous systems are unshattered by the vices and overstrain of civilization, are more exempt than man from cholera.

In time of epidemic visitation the illy-fed, unrested, poverty stricken or vice-broken succumb even more frequently than those whose ambition for wealth and schemes for success rob them of the full benefit of sleep and regular food and recuperating rest.

Many a man well endowed and unweakened in his nervous centers goes about unharmed with the same amount of malaria in his blood, probably, which causes another, less strongly fortified, to succumb to a fatal form of congestion.

All other things being equal, the tranquil-minded and restful and daily and adequately recuperated nervous systems of a community afford the best and longest immunity in time of pestilence. The unrested and unrestful, the weary and the heavy laden, the vice-broken and the unsteadily endowed nervous systems furnish the most numerous and earliest victims.

Insomnia is a thief that robs the brain and nervous system of power and circumvents recuperation—a factor in nervous breakdown more potent than all others, yet it is preventable and curable by remediable measures, public and private.

There is, therefore, without dwelling more in detail, an obvious and important sanitary hygiene for the nervous system in time of great epidemics, and the time for the beginning of preventive measures should be in advance of the actual presence of the morbid invader. That time is now, for when the pestilence shall have come and gone, those who are fittest in the tone and resisting power of their nervous systems to survive, will live out the scourge. The weak and organically unprepared will succumb.

The practical deduction from the foregoing to avert cholera from the human system, in addition to such measures as quarantine it from the country or chemically destroy the bacillus and prevent it from coming into contact with the organism at all, is to eat only such slightly irritating substances as will promote the gastric secretion, without inducing catarrh of the stomach or bowels, and keep such a supply of healthy gastric juice in the stomach as will destroy such comma bacilli as may find lodgment there. Take the best possible care of the physiological vitality of the central nervous system by every known means of rest and repair, and by frequent moderate eating. Maintain by normal nutrition and electrizations the necessary tone of the solar plexus and the perfect physiological integrity of the cerebro-spinal axis; keep away from the cholera infected when the system is exhausted and the supply of gastric juice is likely to be scanty or weak in quality; cultivate and maintain a state of hopeful mental tranquility by avoiding every source of mental overtax and unrest.

The successful prophylaxis of cholera consists of something more than quarantine or chemical disinfection. The chemistry of the nervous system itself, if we but invoke it, may give us aid. The cultivation of resisting nerve force involved by healthy organisms is worthy of our

consideration. A wise prophylaxis and therapeusis seems indicated in adequate rest of the nervous system, in galvanism, which maintains its tone and static electricity which promotes its vigor at the same time that it has the probable power to destroy bacilli and in hot water as near 150° F. as practicable, taken internally, which gives nerve tone and dissipates congestion through its influence on the vaso-motor system, and in chloral, which gives strength through restorative rest and which is also powerfully antiseptic.

The following brief epitome of the anatomical and physiological data of the subject may serve to show still more plainly how essential is the integrity of the nervous system in its highest physiological power to the prophylaxis and endurance of cholera. It is also a sufficient anatomical *résumé* for the subject that follows.

The local innervation of the stomach and intestines is carried on through interlacing of the nerve fibres and ganglion cells imbedded in the sub-mucous and muscular coats. Auerbach's plexus in the muscular and Meissner's in the sub-mucous tissue. Descending from the medulla are the pneumo-gastrics, and from the solar plexus of the sympathetic come gastric branches. The pneumogastrics and the gastric branches of the solar plexus may be said to encompass the stomach.

Vaso-motor nerves branching through the splanchnics from the solar plexus accompany the gastric vessels. These nerves have connection with medullary centers and pass through the cerebral peduncles and thalami aptici to higher centers in the cerebrum.

The salivary and gastric secretions, as well as the movements of the stomach and bowels, are dependent upon nerve influence and the regulation of inhibition and excitation. Gastric secretion is partly a local reflex act through peripheral stimulation from the interior of the stomach, through the nerve branches which go to Auerbach's plexus imbedded in the sub-mucous tissue, but the amount and quality of this secretion will depend largely

upon the integrity of the general ganglionic and whole nervous system, especially upon the tone of the solar plexus and the brain.

The gastric secretion may be inhibited or excited by a powerful mental impression; a painful emotion suppressing and an agreeable one, as of the remembrance of a delicious dish, exciting it and the salivary secretion also.

A reflex from the gustatory nerves to the brain may pass to the stomach and excite it. Great fatigue as well as great pain suspend both gastric secretion and appetite.

During the week of the great St. Louis fire in 1849, the ravages of cholera, which up to that event had reached a mortality of over two hundred a day out of a population of fifty thousand, almost entirely ceased, so stimulating and invigorating was the excitement of that week to the brains and nervous systems of the people, the psychical exaltation inseparable from the sudden necessity thrown upon so many business men for repairing the sudden damage and re-establishing their abruptly interrupted business. Some of the germs, too, may have been destroyed by the great heat, but it was only the business part of the city that was destroyed, where but little cholera prevailed except on the steamers. The writer was in the city at the time and recollects this to have been the fact. And after a week had expired the pestilence raged as before in all its resistless and relentless virulence.

The destructive power of fire suggests the value of crematories for destroying the cholera basilli found in the clothing and dejecta of cholera patients.

THE NECESSITY OF HYGIENIC MEASURES IN REGARD TO DYSPEPSIA ARE BECOMING MORE AND MORE APPARENT
EVERY YEAR.

We have become a nation of dyspeptics, not because we eat too much but because we work too much with our heads and too inopportunately. Fret and worry and ambition to get rich keep the brains of Americans over active. The precarious results of business, the gambling ventures in stocks and sudden reversals of fortune and

recurring threatenings of panics, and the feeling of insecurity which periodically possesses the public mind, keeps the American brain constantly anxious and active to arrest impending failure or miscarriages of cherished enterprises, and the brain thus incessantly overworked and overworried, robs the ganglia of the sympathetic of their due innervation; the pneumogastrics too are impoverished and the innervation that belongs to the stomach through the solar plexus upon which a healthy quality and abundant quantity of gastric juice depends, is not received by it. The victim of dyspepsia is a victim of self-robbery. The overstrained brain surreptitiously takes from the stomach what it needs for healthy function. It is not the bolting of food, so much talked of, that usually causes dyspepsia, but this voracious robbery of the brain, which takes all the nerve force of the body, which brings dyspepsia to the ceaselessly active brain worker and brain worrier.

I have time and again seen men recover from dyspepsia while under treatment for an overworked brain, without a single remedy addressed to the stomach, recover under rest and recuperation of mind and those agencies which induce them.

DYSPEPSIA A DISEASE OF THE BRAIN AND NERVOUS SYSTEM.

Forty years ago the distinguished Amariah Brigham observed that "in a majority of cases, especially among students, dyspepsia is primarily a disease of the brain and nervous system," and before him the great Abercrombie wrote that "symptoms which really depend on disease of the brain are apt to be referred to the stomach."

The testimony of the thousands of watering place and mountain air resorts and sea voyage cures are witnesses of the fact that dyspepsia is largely a disease of the brain and nervous system. The changed home and scenery cure, where depressing cares are dropped and irritating environments are exchanged for agreeable mental surroundings and brain and nerve rest, is the surest

therapeutics for the average dyspeptic, aside from a rational home treatment addressed to the rest and recuperation of the nervous system.

If any one is dyspeptic let him relax his business and secure a rest for his brain, is a safe therapeutic axiom, and this suggests the hygienic procedures of preventive medicine.

If the salvation of the people from gradual as well as sudden destruction be legitimate subjects of sanitation, then the investigation and removal, so far as practicable, of the causes of nervous dyspepsia are legitimate subjects for the efforts of physicians and sanitarians, and it should claim attention of one branch of civil service reform. In all departments of the public service hours of work adjusted to the physiological endurance of the human nervous system and no more should be enjoined, and the time for rest demanded by the physiological necessity of the organism should be secured to all government employees. The State could avert a good deal of nervous break-down and insanity in this way.

The service of nervous dyspeptics, besides being a crime against nature, in a government that develops it in its employes, is never the best service; and in times of national trial or peril is not the kind of service to be relied on. All the causes, mental, moral and physical, of neurasthenia, or malnutrition of the nervous system are legitimate subjects of study for the sanitarian and physician, and the prevention of premature nervous exhaustion in the people of the country is the collective salvation of the nation. A sound nervous system develops and fosters a vigorous optimistic patriotism, confident of the future of the country and capable of putting forth the essential energies to prevent natural decay, while pessimists are bred by illy-nourished and unrested brains and nerves, and the conditions for the fulfillment of their sombre and fatal prophecies are in their nervous systems. Strong brains are the defensive and protective brawn of a people, whether in peace, war or pestilence, and a wise people

will continually foster a judicious nerve sanitation. A well nourished nervous system is the foundation of personal courage and endurance, and in a whole people it is the best security for the prosperity of the state. The conditions and attendant vices of our present civilization tend to undermine nerve-stamina, and sanitation should address itself to arrest the individual and national nerve disintegration, which is in excess, in so many occupations, over recuperative conditions and physical regeneration.

THE NEUROPATHIC DIATHESIS.

There are too many insane, idiotic and feeble-minded people in this and other civilized countries.

A proportion of one to every five hundred people annually falling mentally maimed in the battle of life is too large. The neuropathic diathesis and the insane temperament is becoming the fatal heritage of too many of our people; there are too many brain-weakened and nerve-degenerate victims strewing the pathway of our progress.

Unstable nervous systems are everywhere, and they often wrongly influence public thought and state legislation to the detriment of the race. Cranks and intellectual squints and obliquities, inheritors of neuropathic tendencies, from the vice, ambition, or misfortune-perverted brains of an overtaxed ancestry abound, instead of that nervous stability which, like righteousness, exalts a nation and without which a vigorously righteous people can not be made, but in lieu of which will exist a sickly moral sentimentality running after unfounded moralisms and pathies and driven by every wind of spurious doctrine. To be logical, brains must be strongly endowed. Cramming and straining of brains, especially such as are not uncommonly well endowed by nature, give activity but not power, and all systems of education which disregard individual capacities that come of unstable neurotic endowments are vicious; all plans which seek to draw out all the powers of a growing child, leaving no reserve force daily for building up the growing brain into its possible

proportions of power and beauty, are wrong and must and do result in ruin.

The wants of the evolution period of the nervous powers in the human economy can not be ignored, without arrested development and stunting of the mind and body, or more properly speaking the body; the mind is for all practical purposes, the body; its capabilities and powers being dependent upon the quality and tonicity of the brain texture. (*Mens sana in corpore sano, and vice versa.*)

Education should repress tendencies as well as draw out powers, and to do this it is not moral platitudes that are demanded, but the training up of the organism in the way it should go, by the light of neurological and psychological law; by regarding the physiological wants of the growing brain, letting it rest when it needs rest and feeding its powers during the process of evolution of the higher centers of the thought layers of the cerebral cortex, as well as of the basal ganglia, and by looking to the abundant nutrition, and daily repair of the ganglionic system which presides over the functions of organic life, and this part of education is not one of object lessons or of words, but of true physiological training by supplying the growing organism with the chemical elements of nerve repair richly and without stint. No Dotheby Hall plan of richness will suffice, but the true cream of nutrition for the brain and nerves as fast as they feel the famishing influence of disintegrating work.

The proper building of a brain, with its wondrous powers and possibilities, is the grandest work that can engage the attention of educators, but the chief aim, or at least the principal effect of our present unphysiological system, is to exhaust it in many respects.

Even the violinist will look well to the tone of his instrument, and to atmospherical conditions, before he attempts to use it, but the average educator treats the harp of a thousand strings regardless of the conditions of keeping it in tune, and as though, despite the worst ill usage, it would keep in tune forever.

It is a long time since Grotius wrote "the care of the human mind is the noblest branch of medicine," so long that, like all other medical facts long ago promulgated, it has become common property, and the care of the mind should be the chief concern of the people.

History shows us how nations have perished and been blotted out by reason of degeneracy of brain and nerve organization, and how people, once masters in peaceful arts and war, have grown powerless or passed into third rate powers among the nations. "Greece, Rome, Carthage, where are they?" And why are they not as of yore? And Spain and Mexico how changed! And other nations saved from absolute extinction by revolutions bred of unstable neurotic organizations, by which, in blood and carnage, hordes of neuropaths have been destroyed, and the neuropathic degeneration of the nation has been stayed through regenerating war permitting mainly the fittest to survive to propagate a fitter race to longer live.

No regenerating revolutions have yet swept over our land, save the late unhappy war with the South, itself born, in my humble opinion, of unstable passion, which, with better brains and steadier nerves, might have been averted, and we should have a care lest by carrying the forcing process of our public school and collegiate systems too far without due regard to the recuperation and growth in steady brain power of our children and youth, we fit the rising and coming generations for the repetition of ensanguined history; for revolutions and wars must needs come, like pestilence and famine, to fit the survivors of a largely unfit people to live. As waste precedes repair and is a condition of it, in brain or muscle, and as it is the condition of the display of power in physics, so in the human economy the ordinary waste may give place to extraordinary destruction, that that which is most physiological in a people should be separated from the pathological and it thus be made possible for a nation by the rejuvenation of revolution and war to live out an otherwise inglorious destiny. ,

We see in our own day individuals stricken down in their prime, with preventable brain and nerve destruction, and it is fortunate for the welfare of the race that so many die prematurely without leaving behind greater multitudes than there are, dowered with the fatal tendency to break down early in life in brain and nerve. Yet too many, like Dean Swift, begin to perish at the top, even before middle life. Greeley, President Johnson, Vice-President Wilson, and hosts of others, whose names occur to you among the not remotely dead, tell how very prone the brains of our public men are to break down under the strain of life's demands.

The hygiene of the mind and nervous system should be such as to make these too common occurrences exceptional. Men should know that blood vessels kept over full by habitual and too prolonged mental excitation, aided by over stimulation of the heart by alcoholic indulgence, must sooner or later end in pathological dilatation of brain vessels, in serous exudation, or in arteriole rupture, or in heart failure or hypertrophy and their fatal consequences. There is a limit to the capacity of the brain or of any other organ of the body for labor, without ample rest and repair, even as there is a limit to the capacity of inanimate machinery less intricately and wonderfully wrought than the mind, to endlessly work on.

Nations and states and communities have need of quarantine against the hordes of neuropaths that hover about, or fill high places or go about in public, ready, like dynamite bombs, to explode under slight, sudden pressure, and destroy. The Guiteaus and Booths and Lawrences who shoot at Presidents, in times of public political excitement; the Passenantes and Hadfields who make Kings the mark of their unprovoked vengeance; the Freemans and Smiths who make tragedies of child-sacrifice to delusive inspiration, like the horrors of Pokasett and Westminster, and murder and arson and crimes innumerable and nameless, are often only possible through predominance of insanity or the insane temperament, the

spread of which is more to be dreaded in any community than the worst of physical pestilences, for its baneful work goes on from generation to generation; through it the infant now just suckling at the breast is fatally predestined to slay her who gives it its first life sustenance; through it babes just born are strangled by mothers in the throes of puerperal mania; through it are fratricides, patricides and matricides otherwise impossible, and many of the most horrible and awful of crimes which in the public press daily keep our thoughts on blood. It is a great good fortune for the perpetuation of the average stability of the race that so many who are possessed of the insane temperament early commit suicide and that, possessed of feeble resisting power to morbid disintegrating forces, they die prematurely, or before propagating their species of intercurrent diseases, and before others are made the victims of their fatally unstable heritage.

When the neuropathic diathesis has developed into insanity, in its aggravated and dangerous forms, society is willing to house the lunatic and let him out again when he ceases to be harmful, but an insane man is never harmless to society if he be in the prime of life. If he be married, or likely to marry, the reason is obvious, and all the more harmful will he be if a victim of some doubtful undemonstrative form of insanity whose existence is so often denied, of insanity in psycho-sensory rather than in pronounced delusional form.

Insanity and the insane temperament are therefore subjects of the greatest concern to any people, of the utmost importance to communities as well as to families. A matrimonial alliance once formed with an impending lunatic means the founding of a family with a tendency to brain degeneracy, and the likelihood of a progeny of cranks, or over active or feeble-minded and unstable eccentrics or positive lunatics, and the individual and the State must suffer. Our modern civilization does not justify the radical measures which would have occurred to Lycurgus had he been confronted as we are, with the fatal

ravages of the insane temperament; but law can and must, if the nation is saved, do something more than simply corral the physically dangerous lunatic in asylums, which is now the present tendency and only remedy employed.

A certain degree of exemption should be proven, sufficient at least to give a reasonable chance of regeneration, before marriage contracts are sanctioned.

Positive lunatics should of course be forbidden marriage, and marriage should be forbidden to confirmed drunkards, for drunkenness breeds hereditary epilepsy, dipsomania, imbecility and insanity; and marriage should be forbidden to epileptics.

The instructive typical family history given by Morel, of immorality, alcoholic excess and brutal degradation in the first generation, followed by a record of hereditary drunkenness, maniacal attacks and general paralysis in the second, hypochondria, lypemania, systematic mania and homicidal tendencies associated with sobriety in the third, with feeble intelligence, stupidity and mania in youth and transition to complete idiocy and extinction of the family in the fourth generation, is not more instructive than the history the writer has given of the O. Z. family, (*Vide ALIENIST AND NEUROLOGIST*,) where from the early intemperance of the father (though reformation subsequently followed in the father) all of the immediate descendants are neuropathically endowed, one child having been first nymphomaniacal, then generally maniacal and demented, another maniacal, a third dipsomaniacal and morally deranged, a fourth epileptic, the fifth markedly hysterical and gangliopathic and the sixth, still a youth, markedly neuropathic.

The peril of the race from the increase of the neuropathic diathesis should set us all to thinking, and those who have the authority, to acting in the direction of self-preservation and indirectly of the ultimate life of the nation. The multiplication of hospitals for the insane and of inebriate asylums and of schools for the feeble-minded, and improved methods of treating nervous diseases and

of homes for impoverished neuropaths of every grade, from the hospital for nervous diseases proper to the almshouse where many of these wrecks are lodged, does not cure the evil, though they serve to hide it somewhat from public sight. We best provide against the spread of small-pox by general vaccination, not by numerous pest houses, so by general preventive sanitation can we avert the threatening spread of the now prevalent and growing diseases of the nervous system.

The neuropathic diathesis, the insane constitution that breeds its like and burdens the State with hereditary imbecility, idiocy, insanity, deaf-mutism, and the lesser degrees of mental defect, must be made the subject of statutory enactment and enforced law; sentimentality must yield to fact; the teachings of nature must be as decided and as sternly enforced as her own unerring edicts are. Why should the drunkard and epileptic be permitted to beget a race of imbeciles, epileptics, idiots or criminals? Why should the life-long criminal and the pauper be allowed to go on reproducing his defective kind, the lunatic likewise, and all the mentally maimed of whatever degree, especially when by forfeiture of liberty they fall under proper custody of the law; and why should generation after generation of these miserables be allowed to be brought into being to become either burdens upon the state or victims of its misdirected vengeance, when prevention is possible, and better for the state, and only justice to the helpless and prematurely doomed to an unchosen existence worse than death? If municipalities may lawfully quarantine yellow fever and cholera, why may not, and why ought not, this greater destructive agency than plague or pestilence, which never ceases its ravages—the hereditary descent of the organically vicious and defective—be stopped by law? No pestilence that ever walked in darkness or destruction that has wasted at noonday has done greater harm to mankind than the silent, ever active destructive power of hereditary degeneracy of brain and mind. Instead of visiting punishment on the heads of

these weakened victims of entailed disease, let law go to the *fons et origo*, and stop this vicious progeny from being thrown upon a world in which they are unfitted to live.

More than a century ago Cabannis said: "As the liver secretes bile and the stomach gastric juice, so the brain secretes thought," a proposition exact enough for comparison, and as a working basis for sanitary legislation, for, though thought and mind are probably something more than secretion of the brain, mind is dependent for its every normal movement upon the integrity of the brain, and wrong and misleading thought will be evolved if the physical substratum of the mind—the human brain—gets out of order. The duty of our day is to see that, so far as practicable, we transmit to our descendents healthy brains and vigorous nervous systems, and to this end personal endeavor and municipal legislation should be invoked. A true civilization should show development and not degeneracy of brain power, and the proudest monument to our wisdom we might erect would be one of neurotic regeneracy, a richer legacy to the coming generations than railroads or telegraphs, phonographs or telephones, electric lights, or aerial navigation, successfully accomplished, for without neurotic regeneracy these blessings will prove curses and promoters of still further neuropathic decay, and final extinction of mind. To enjoy these, power of the nervous system and mind should be increased, not diminished; yet in them, and the press, injudiciously used, are the seeds and elements of destruction.

Let the present generation, with all of its advancement and advantages, have a care for its strength of brain and nerve, and the brain and nerve strength of those who are to follow it.

